Inadvertently Displayed Trajectory of Type C Oesophageal Atresia during a Contrast Study

A full-term female baby weighing 2800 g was born to a 19-year-old gravida 1 para 1 mother by spontaneous vaginal delivery in a local hospital. No specific features were present in the family history; a normal growing baby was reported in routine antenatal screening tests and ultrasound scans. The baby's postnatal examination was reported as normal, and the infant was discharged home within 24 h. On the 3rd day after her birth, she was referred to our hospital by her family doctor for poor feeding, choking and cyanosis during breastfeeding. The inability to insert a rigid nasogastric (NG) tube into the patient's stomach was suspected to be caused by oesophageal atresia (EA). A bed-side contrast study was performed using a diluted low osmolar non-ionic iodinated agent to confirm the diagnosis. Shortly after, contrast medium was injected through the NG tube, and she showed signs of respiratory distress. There was direct evidence of contrast aspiration during the study. The neonate was then intubated and transferred to the intensive care unit. Two consecutives anterior-posterior thoracoabdominal X-rays showed a blindly ending oesophageal pouch. However, an excessive amount of iohexol that had been aspirated had passed from the trachea to the distal oesophagus and the stomach via a distal tracheoesophageal fistula (TEF). This inadvertently displayed the trajectory of Type C esophageal atresia as well [Figures 1 and 2]. On the 5th day after her birth, she underwent standard repair of the EA with distal TEF surgery through a posterolateral extrapleural right-sided thoracotomy. The division of TEF and primary end-to-end esophago-esophageal anastomosis was done. The post-operative period was challenging due to chemical pneumonitis. The infant was discharged on the 20th post-operative day. To our knowledge, this is the first report of significant aspiration of radiographic iohexol contrast material in a neonate.

The diagnostic radiologic study of EA can be complicated or can yield inaccurate results. Upper pouch contrast studies are not usually indicated because aspiration of radiographic contrast material in the tracheobronchial tree is a potentially lethal complication.[1] On the other hand, contrast-filled catheter studies can lead to misdiagnosis because catheters can pass into the stomach through a TEF.[2] The contrast media that is chosen for a radiological study is also important. Iohexol is a safer contrast agent for the lungs, and the use of iohexol enabled our patient to recover uneventfully after aspiration.[3-5]

Contrast-enhanced studies for the diagnosis of EA should be avoided. If needed, they should be performed by radiologists using iohexol and patients should undergo fluoroscopic monitoring at centres equipped for neonatal emergencies. The amount of diluted contrast material should be kept to a minimum. Early identification of this adverse event is critical for the successful treatment of the patient.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.



Figure 1: First thoracoabdominal X-ray showing a contrast-filled oesophageal pouch, tracheobronchial tree, distal oesophagus and stomach

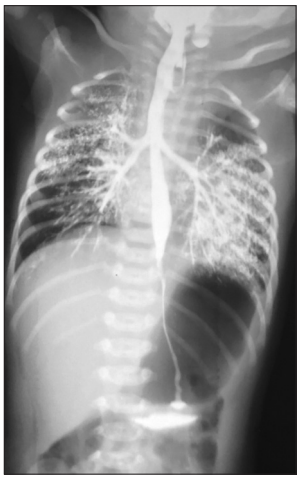


Figure 2: Second thoracoabdominal X-ray also showing more visible peripheral bronchial branches and flow of contrast material from the distal oesophagus to the air-filled stomach

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

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Received: 20-12-2022 **Revised:** 12-04-2023 **Accepted:** 28-04-2023 **Available Online:** 14-03-2024

Access this article online

Quick Response Code:

Website: https://journals.lww.com/AJPS

DOI: 10.4103/ajps.ajps_169_22

How to cite this article: Mehmetoglu F. Inadvertently displayed trajectory of Type C Oesophageal atresia during a contrast study. Afr J Paediatr Surg 2024;21:215-6.

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